REMARKS

In reply to the above Office Action, the specification and Abstract have been amended to avoid the noted objections to the drawings and the minor informalities to the specification noted in the Office Action. Applicants appreciate the Examiner taking the time to point out these errors. Also enclosed are Replacement Drawings of FIGS. 1-4 that avoid the Examiner's specific objections to the Drawings.

In addition, claims 1-26 have been cancelled and replaced by new claims 27-49 to avoid improper multiple dependency, to avoid the rejection of the claims under §112, second paragraph, to more clearly claim applicants' invention and to place the claims in more traditional U.S. format.

Applicants' invention as set forth in new main claim 27 relates to a method for the production of SO_2 from the combustion of elemental sulfur and pure oxygen, comprising the steps of:

feeding liquid sulfur into an atomizer in a burner;

atomizing the liquid sulfur in the burner together with return SO_2 and pure oxygen, and

producing oxidative combustion of the liquid sulfur and the pure oxygen in a combustion chamber to produce SO_2, in the presence of the return SO_2, wherein the return SO_2 is used as a cooling and diluting agent for the reactants taking part in the oxidative combustion in the combustion chamber, the temperature of the oxidative combustion of the liquid surfur does not exceed 1250°C, and the production is controlled by maintaining a defined ration of S, O_2 and SO_2. New claim 27 is a combination of former claim 1 and a part of claims 2 and 4.

In the Office Action, the Examiner rejected claims 1-3 under 35 U.S.C. §102(b) for being anticipated by Guth et al., hereafter Guth. Claim 1 was also rejected under 35 U.S.C. §102(b) for being anticipated by Chatelain et al., hereafter Chatelain.

Guth describes a continuous process for the production of high-purity SO_2, comprising the combustion of sulfur with oxygen; the sulfur being burnt in multiple steps, being cooled in between steps, and a fraction of the SO_2 produced being recirculated to the first combustion step.

The process described in the present invention differs from the process of Guth in that the combustion of sulfur with pure oxygen is carried out in a single combustion step, in a combustion chamber. The process is therefore easier to control, because it only requires controlling three elements, the sulfur to be burnt, the oxygen necessary for burning and the recirculating mass for cooling, thus being a more controllable and safe process. Additionally, the temperatures reached in the process described in Guth are between 1700°C and 2500°C (column 2, line 26), while in the present invention the temperature does not exceed 1250°C. Consequently, it is not necessary to employ special materials to resist such high temperatures as those described in Guth.

Further differences can be found in some of the dependent claims. For example, as set forth in claim 28 or 45, up to four times the SO_2 mass produced can be recirculated to the combustion chamber.

Accordingly, it is not believed that claim 27 or claims 28-49 dependent therefrom can be considered anticipated by Guth, and its withdrawal as a ground of rejection of the claims under §102 is therefore requested.

Chatelain describes a method and apparatuses for providing a controlled supply of sulfur combustion gases. However, it does not describe a combustion process wherein the reaction temperature is controlled with the same SO_2 produced. This patent differs from the present invention wherein the reactants present in the combustion, as well as the SO_2 which is recirculated to cool the system, are controlled by maintaining a defined ratio of S, O_2 and SO.

Accordingly, it is not believed that claim 27 or claims 28-49 dependent therefrom are anticipated by Chatelain either, and its withdrawal as a ground of rejection of the claims under §102 is therefore also requested.

It is believed claims 27-49 are in condition for allowance. In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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GARRETT & DUNNER, L.L.P.

Dated: January 19, 2005

By: _____
Arthur S. Garrett
Reg. No. 20,338

Attachments: Attachments: Replacement Sheet(s) - Four sheets (Figures 1-4)
Annotated Sheets Showing Changes - Four sheets (Figures 1-4)
Replacement Abstract

AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawings include changes to Figures 1-4..

Attachments: Replacement Sheet(s) - Four sheets (Figures 1-4)
Annotated Sheets Showing Changes - Four sheets (Figures 1-4)

ANNOTATED SHEETS SHOWING CHANGES

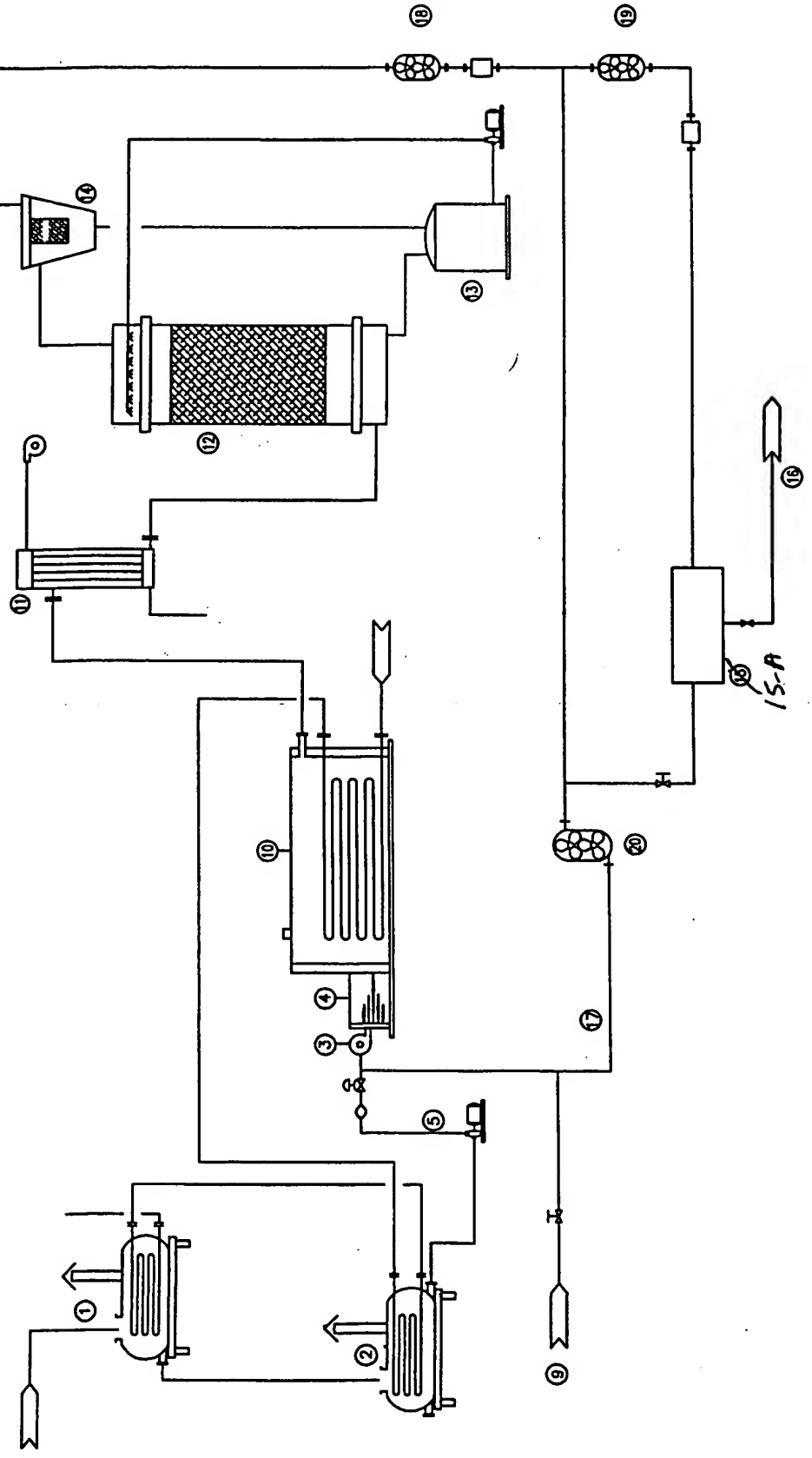
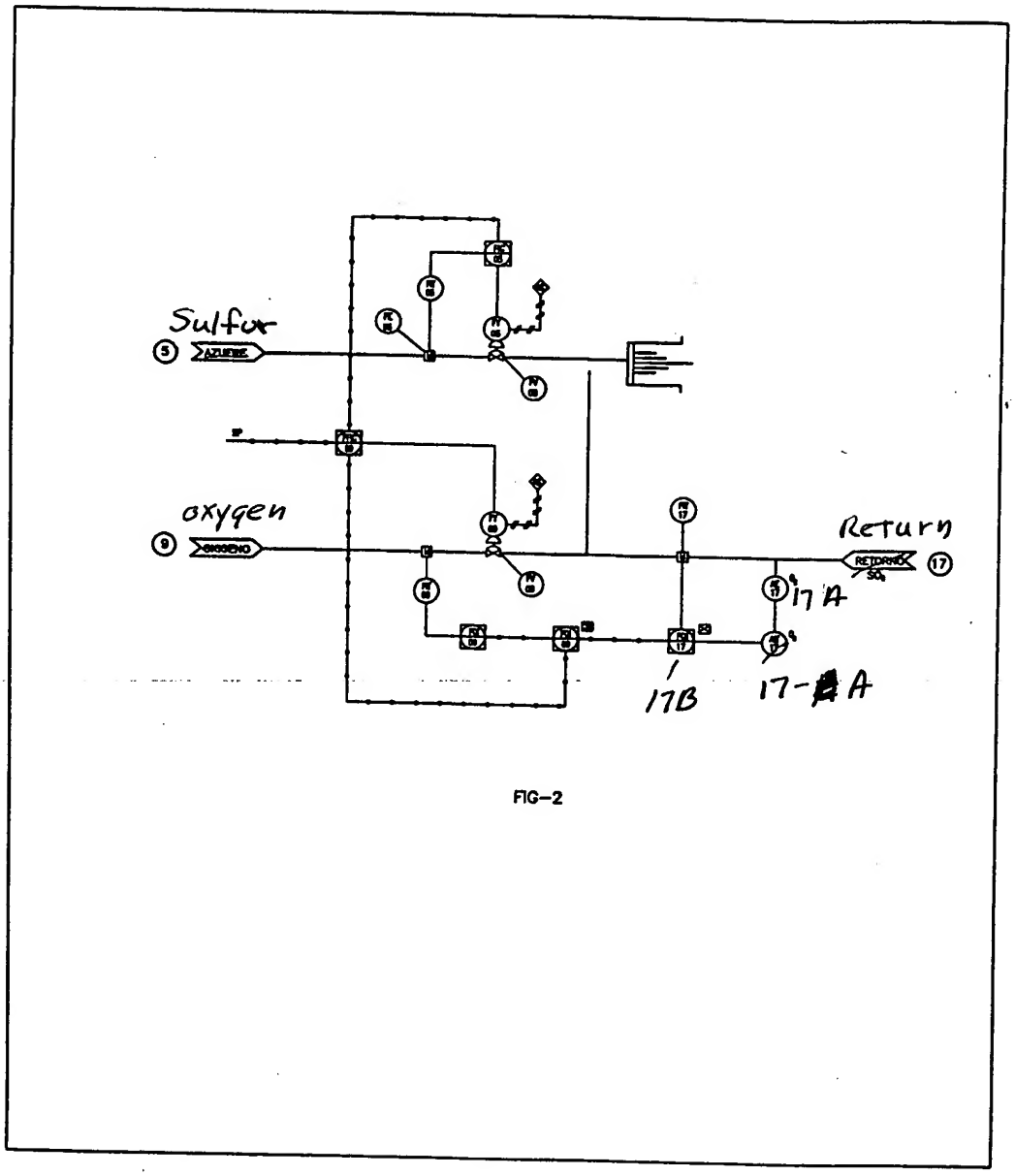


FIG-1

ANNOTATED SHEETS SHOWING CHANGES



FIG–2

ANNOTATED SHEETS SHOWING CHANGES

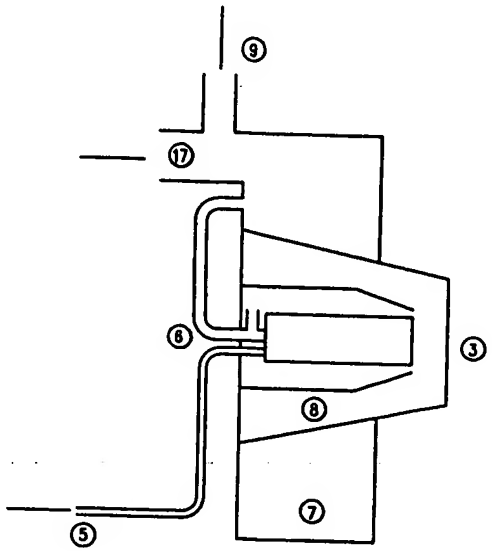
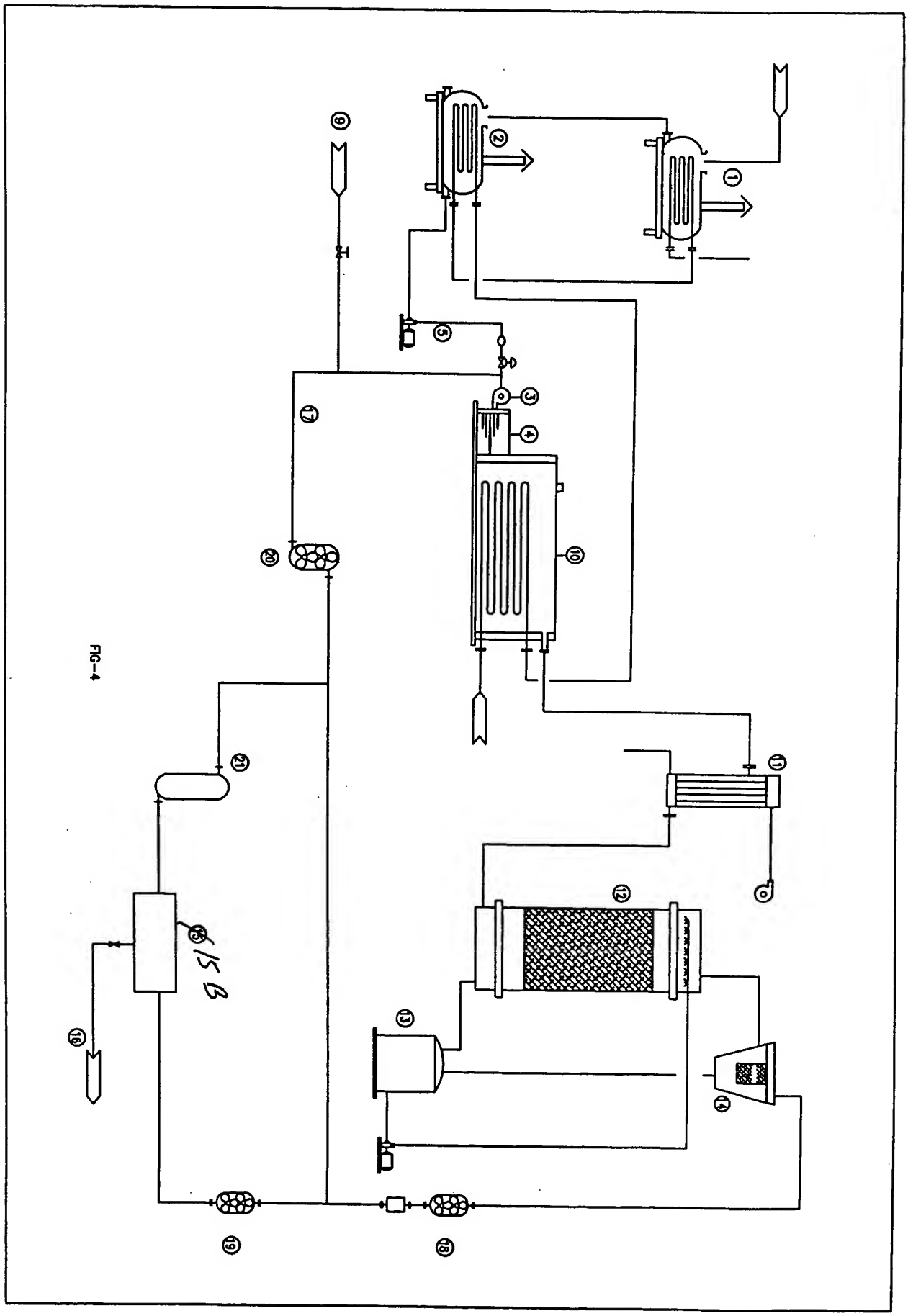


FIG-3

ANNOTATED SHEETS SHOWING CHANGES



FIG—4